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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/999,809	11/16/2001	Bruce F. Macbeth	905_134	3733
20874	7590	12/24/2003	EXAMINER LEJA, RONALD W.	
WALL MARJAMA & BILINSKI 101 SOUTH SALINA STREET SUITE 400 SYRACUSE, NY 13202			ART UNIT 2836	

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/990,809

Applicant(s)

MACBETH, BRUCE F.

Examiner

Ronald W Leja

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18, 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 19-25, 30-33, 39-41, 44 and 45 is/are rejected.
- 7) ☒ Claim(s) 26, 27, 34-38, 42, 43 & 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 31, 32, 39 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Scott et al. (6,625,550).

Scott et al. disclose in Fig. 1 an arc fault protection device comprising a first conductor (15) and a second conductor (airframe), wherein a torroid sensor (16) detects di/dt on one of the conductors and the circuitry related to zero crossing detector (21), i.e. summer and connections to the left of detector (21), are considered to be load current sensing means. See Col. 2, lines 35-48; Col. 3, lines 13-42, Col. 4, lines 42-43; Col. 5, lines 1-11; Col. 6, lines 23-32; Col. 8, lines 11-24, 44-46; Col. 9, lines 24-31 and Col. 10, lines 18-27.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 33, 41, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al..

Claims 33 and 41 require the use of two sets of characteristics to determine noise or low-level arc faults. Scott et al. do not specifically disclose use of various sets of characteristics, but rather software implemented procedures utilizing various detected parameters so as to characterize different arc conditions, i.e. parallel, series, noise and those from accepted load arc-mimicking signatures. See Col. 2, lines 35-48. Whether one wanted to group the various steps and procedures into different sets of characteristics would have been obvious as a means to help separate the different arc faults detected, i.e. series arcs from parallel arcs from noise and accepted load signatures, and thereby, be able to utilize such information to further help track down the cause of undesired arcing, leading to faster correction of the problem by the technician. Addressing Claims 44 and 45, Scott et al. disclose use of a toroidal transformer (16) and Col. 9, lines 28-32 indicated that it is known to utilize a resistive divider for obtaining a voltage from the conductors. Therefore, it is the opinion of the Examiner, that it would have been obvious to one having ordinary skill in the art at the time of the invention, to use either a transformer or a resistive shunt so as to be able to sense the load current of the distribution system for zero crossing detector (21).

5. Claims 19-25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haun et al. (6,414,829).

Haun et al. disclose an arc fault protection device (see Fig. 1) which protects an electrical distribution system having a load (50). A sensor (16) is used as well as a first threshold detector (84) and a second threshold detector (86). The threshold detectors are used with a first (80) and second (82) filter, respectively. Haun et al. do not specifically disclose that the first and second filters become enabled by the exceed thresholds, but rather that if the outputs from the filters are above a threshold, then the signal gets outputted. It would have been obvious to one having ordinary skill in the art to only enable the filter circuits if the threshold set by the respective first and second current threshold detectors have been exceeded, as such would provide the same results. A possible benefit would be alleviation of any undue stress from the filter circuits, leading to circuit longevity. For Claims 24 and 25, such techniques are well known in the art and would have been obvious. Dropping a resistive shunt to obtain threshold detectors would have been obvious for the reproducibility that resistors offer. The use of software filters would have been obvious as a means to conserve space by implementing more of the analog discrete functions into the microprocessor itself.

6. Claims 1-18, 28 and 29 are allowed.

7. Claims 26, 27, 34-38, 42, 43 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if

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rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a Statement of Reasons for the Indication of Allowable Subject Matter: The Prior Art of Record does not disclose nor suggest the claimed combinations found in Independent Claims 1, 12, 28 and 29, and similar limitations found in the dependent claims, which include the "various enablings" of the first and second filters for distinguishing arc fault signatures from unwanted arc mimicking noise having first and second sets of characteristics, respectively, with respect to the load current threshold(s).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald W Leja whose telephone number is (703) 308-2008. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Circus can be reached on (703) 308-3119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Ronald W. Leja
Ronald W Leja
Primary Examiner
Art Unit 2836

rwl
December 14, 2003

12/14/03